

CLAIMS

I claim:

1. Orthodontic wire, in association with attachments bonded on the teeth, to correct position anomalies thereof, made of a material having high mechanical performances and very low friction coefficient on said attachments, characterized in that said material is defined by a basic structure made of a titanium-molybdenum alloy comprising, in its outer surface layer, titanium nitrides of the type TiN, Ti₂N, free of titanium oxide.

2. Method for making a metallic wire according to claim 1, characterized in that, in order to form the titanium nitrides of the type TiN, Ti₂N in the external superficial layer of the titanium-molybdenum alloy, a treatment of superficial implantation of N⁺ and N⁺⁺ ions is performed, working in an enclosure under vacuum, at a temperature lower than 450°C.

3. Method according to claim 2, characterized in that the treatment of superficial ionic implantation of the titanium-molybdenum alloy is performed in two consecutive phases.

4. Method according to claim 3 characterized in that the titanium-molybdenum alloy is first submitted to a phase of depassivation by non-reactive cold plasma by introducing an inert gas yet progressively increasing the temperature, then to a phase of nitriding by cold plasma by introducing a mixture of an inert gas and nitrogen.

5. Method according to claim 4, characterized in that, during the two phases of the treatment of superficial implantation of N^+ and N^{++} ions, argon is used as inert gas.

6. Method according to any of claims 4 or 5, characterized in that during the nitriding phase, proportions of inert gas and nitrogen that are used are adapted to the volume of the enclosure in which the phase takes place, and comprising enough nitrogen to permit its implantation and enough argon to dissociate the nitrogen.

7. Method according to one of claims 4 through 6, characterized in that the titanium-molybdenum alloy is submitted to the depassivation phase for about 45 minutes, then to the nitriding phase for about 200 minutes.

8. Method according to any of claims 2 through 7, characterized in that the treatment of superficial ionic implantation of the titanium-molybdenum alloy is completed by a slow cooling phase.